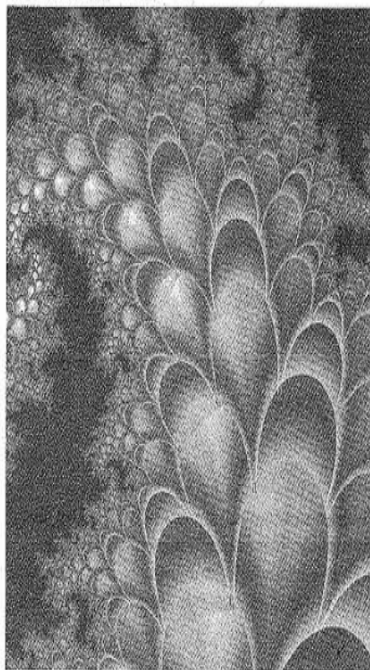


Parrot fire Kris Northern



"Rather than zoom into the fractal you can zoom into the edge of it and continually find the same pattern repeating itself much like the shoreline of a lake viewed from a plane."— Kris Northern

Investigations

IN NUMBER, DATA, AND SPACE®

STUDENT ACTIVITY BOOK

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CC: N3

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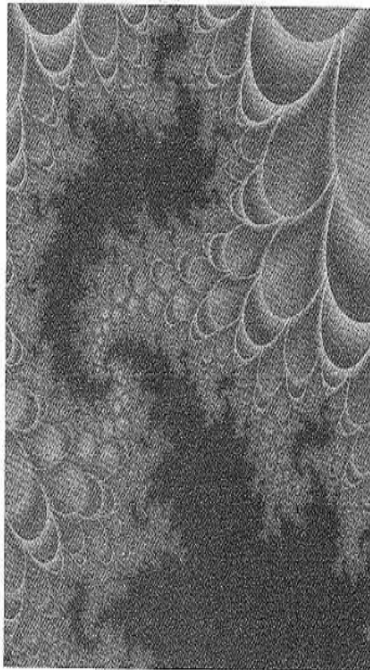
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Parrot Fire Kris Northern

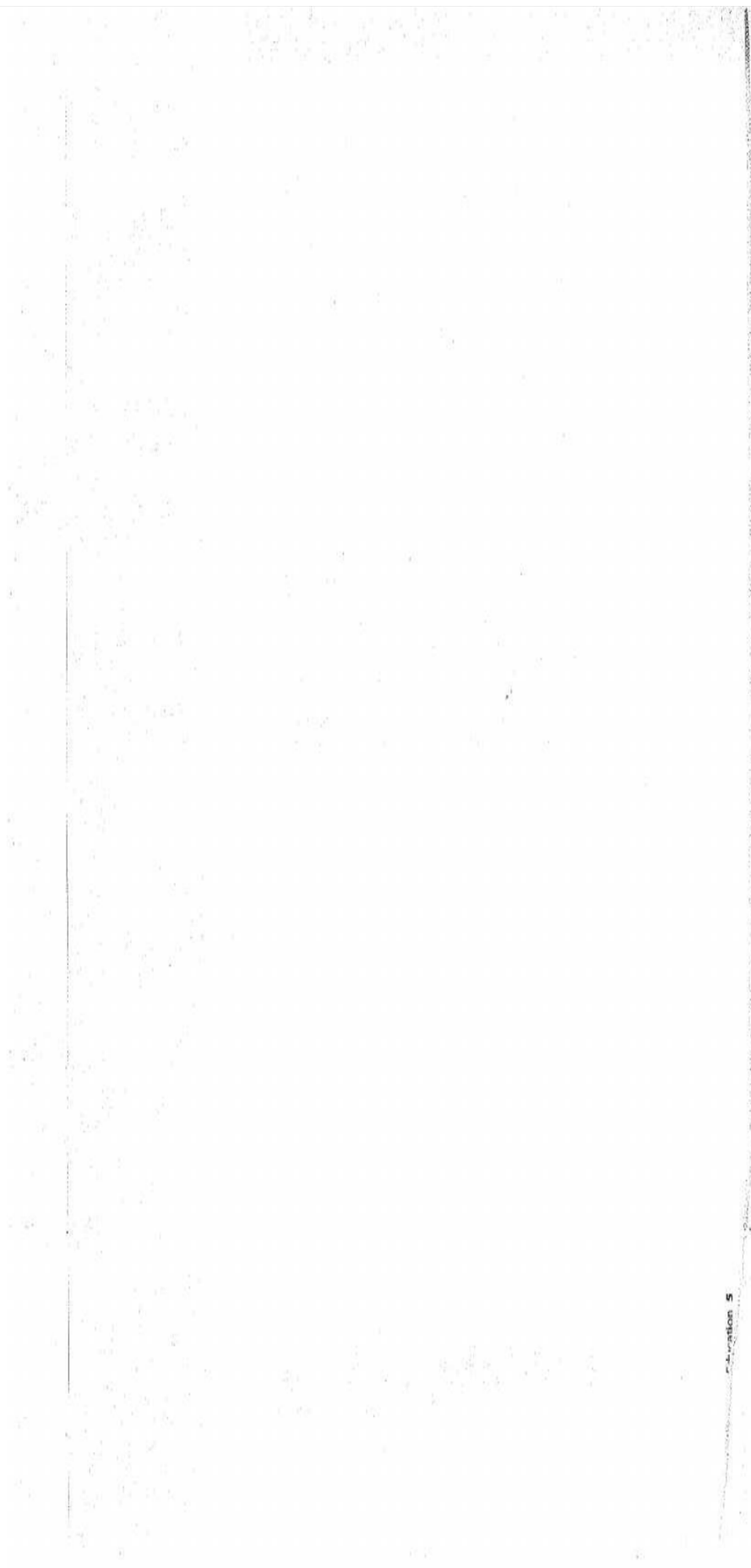


"Rather than zoom into the fractal you can zoom into the edge of it and continually find the same pattern repeating itself much like the shoreline of a lake viewed from a plane." — Kris Northern

Investigations

IN NUMBER, DATA, AND SPACE®

Student Activity Book



Number Puzzles and Multiple Towers

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Handwritten notes and diagrams on a page, possibly a ledger or notebook. The text is written in cursive and includes various entries, some of which are organized into columns. There are also some small sketches or diagrams interspersed with the text.

Name _____

Date _____

Number Puzzles and Multiple Towers

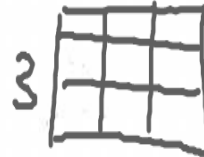
Number Puzzles: 1 Clue

(page 1 of 2)

For each number puzzle, follow these steps.

- Find two numbers that fit each clue.
- Draw rectangles, and label the dimensions to show that your numbers fit the clue.
- List other numbers that also fit the clue.

of units 3



1. This number of tiles will make a rectangle that is 2 tiles wide.



Number: 2
 Rectangle: 1 by 2
 $1 \times 2 = 2$

Number: 4
 Rectangle: 2 by 2
 multiples of 2

What other numbers fit this clue? 2, 4, 6, 8, 10, 12...

2. This number of tiles will make a rectangle that is 5 tiles wide.

Number: 5
 Rectangle: 1 by 5
 multiples of 5

Number: 10
 Rectangle: 2 by 5
 $2 \times 5 = 10$



What other numbers fit this clue? 5, 10, 15, 20, 25...

3. This number of tiles will make only one rectangle.

Number: 1
 Rectangle: 1 by 1

Number: 3
 Rectangle: 3 by 1



composite: more factors than 1 & self



What other numbers fit this clue? 1, 2, 3, 5, 7, 11, 13

Prime: only 1 & self

Number Puzzles: 1 Clue (page 2 of 2)

4. This number of tiles will make a square.

Number: 1Number: 2

Rectangle:

Rectangle:



What other numbers fit this clue?

1, 4, 9, 25, 36, 49, 64, 81, 144
 $2 \times 2 = 4$, $3 \times 3 = 9$, $4 \times 4 = 16$, $5 \times 5 = 25$, $6 \times 6 = 36$, $7 \times 7 = 49$,
 $8 \times 8 = 64$, $9 \times 9 = 81$,
 $10 \times 10 = 100$, $11 \times 11 = 121$,
 $12 \times 12 = 144$

5. There are some numbers that can be made into only one rectangle (Problem 3). Find all of these numbers up to 50. prime #s: factors 1 and self

1, 2, 3, 5, 7, 11, 13, 17, 19, 23,

29, 31, 37, 41, ...

D ÷
 m x
 S -
 B ↓

R rep. or remainder

$$\begin{array}{r} \times 13 \\ 3 \overline{) 39} \\ \underline{39} \\ 0 \end{array}$$

3

 $3 \times 3 \times 3 \times 3$

exponent
 of 2 = square #
 same

6. There are some numbers that can make a square (Problem 4). Find all of these numbers up to 100.

1, 2, 3, 4, 5, 6

 1×1 , 2×2 , 3×3 , 4×4 , 5×5 , 6×6

1, 4, 9, 16, 25, 36, 49, 64, 81, 100

Factors and Multiples?

can find 1. List all of the factors of 42. (2#s that together to get 42)

42: 1, 42, 2, 21, 6, 7, 3, 14

factor finished

8/23/10 3:42 PM

2. List five multiples of 42.

42: 42, 84, 126, 168, 210

42x1, 42x2, 42x3, 42x4, 42x5

3. Explain the difference between a factor and a multiple.

Multiples are count by numbers.

Factors are numbers multiplied together to get another number. (Ex: 6: 1, 6, 3, 2)

Ongoing Review

4. Which number is not a factor of 36?

- A. 4 B. 8 C. 9

5. Which number is a multiple of 36?

- A. 200 B. 108 C. 76 D. 48

NOTE Students find factors and multiples of 2-digit numbers.

SMH 18-19

$$42 \times 1 = 42$$

$$21 \times 2 = 42$$

$$6 \times 7 = 42$$

$$\begin{array}{r} 3 \overline{)42} \\ \underline{-30} \\ 12 \\ \underline{-12} \\ 00 \end{array}$$

Ex: 6, 12, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72, 78, 84, 90, 96, 102, 108, 114, 120, 126, 132, 138, 144, 150, 156, 162, 168, 174, 180, 186, 192, 198, 204, 210, 216, 222, 228, 234, 240, 246, 252, 258, 264, 270, 276, 282, 288, 294, 300, 306, 312, 318, 324, 330, 336, 342, 348, 354, 360, 366, 372, 378, 384, 390, 396, 402, 408, 414, 420, 426, 432, 438, 444, 450, 456, 462, 468, 474, 480, 486, 492, 498, 504, 510, 516, 522, 528, 534, 540, 546, 552, 558, 564, 570, 576, 582, 588, 594, 600, 606, 612, 618, 624, 630, 636, 642, 648, 654, 660, 666, 672, 678, 684, 690, 696, 702, 708, 714, 720, 726, 732, 738, 744, 750, 756, 762, 768, 774, 780, 786, 792, 798, 804, 810, 816, 822, 828, 834, 840, 846, 852, 858, 864, 870, 876, 882, 888, 894, 900, 906, 912, 918, 924, 930, 936, 942, 948, 954, 960, 966, 972, 978, 984, 990, 996, 1000

$$\begin{array}{r} 12 \\ +12 \\ \hline 24 \end{array}$$

$$1 \times 6 = 6$$

$$3 \times 2 = 6$$

$$\begin{array}{r} 36 \\ 36 \times 1 \\ 36 \times 2 \\ 36 \times 3 \\ 36 \times 4 \\ 36 \times 5 \\ 36 \times 6 \\ 36 \times 7 \\ 36 \times 8 \\ 36 \times 9 \\ 36 \times 10 \end{array}$$

$$\begin{array}{r} 12 \\ +12 \\ \hline 24 \\ \hline 36 \\ \hline 48 \end{array}$$

Name

Date

8/24/10

Number Puzzles and Multiple Towers

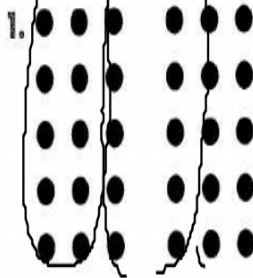
Homework

Seeing Number
Dot Patternsmath
sentence

NOTE Students are beginning a new Investigation, a review of multiplication. For each picture below, they write multiplication equations representing different ways to find the number of dots.

SMH 23-24

Look at each picture in different ways.
Write equations to show different ways to multiply that you can see in the picture.

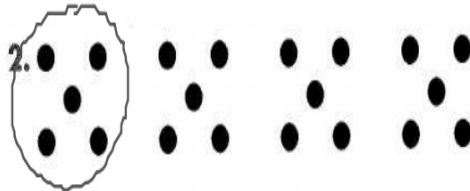
Example $5 \times 3 \times 2 = 30$

$$5 \times 6 = 30$$

$$15 \times 2 = 30$$

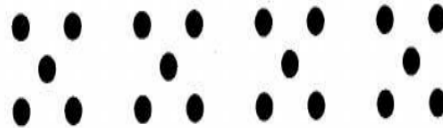
$$10 \times 3 = 30$$

not HW for more
30x3 more only



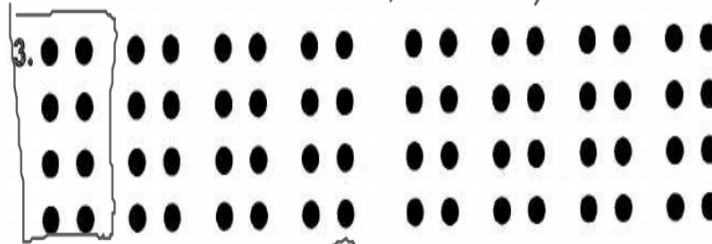
2 or more ways

40x1



$$20 \times 2 = 40, 5 \times 8, 10 \times 4, (4 \times 5) \times 2,$$

8x8



$$8 \times 8 = 64, 16 \times 4, 32 \times 2, 64 \times 1,$$

$$(3 \times 8) + (5 \times 8) = 64$$

$$24 + 40 = 64$$

Name _____

Date _____

Number Puzzles and Multiple Towers

Number Puzzles: 2 Clues (page 1 of 2)

For each number puzzle, follow these steps.

- Find two numbers that fit both clues.
- Draw rectangles, and label the dimensions to show that your numbers fit both clues.
- List other numbers that also fit both clues.

1.

This number of tiles
will make a rectangle
that is 2 tiles wide.

and

This number of tiles
will make a rectangle
that is 4 tiles wide.

Numbers: _____

Rectangles:

What other numbers fit this clue? _____

Name _____

Date _____

Number Puzzles and Multiple Towers

Number Puzzles: 2 Clues (page 2 of 2)

2.

This number of tiles
will make a rectangle
that is 3 tiles wide.

and

This number of tiles
will make a rectangle
that is 4 tiles wide.

Numbers: _____

Rectangles:

What other numbers fit this clue? _____

3.

This number of tiles
will make a rectangle
that is 20 tiles wide.

and

This number of tiles
will make a rectangle
that is 25 tiles wide.

Numbers: _____

Rectangles:

What other numbers fit this clue? _____

8/25/10 2:09 PM

Computation Practice: Adding Two Ways

Solve this problem in two different ways.
Be sure to show how you got your answer.

$$1,018 + 879 = \underline{\hspace{2cm}}$$

First way:

$$\begin{array}{r} 1,018 \\ + 879 \\ \hline 1,897 \end{array}$$

Second way:

$$1,000 + 897 = 1,897$$

NOTE Students practice strategies for solving addition problems. work on efficiency and flexibility by solving the same problem in different ways.

SMH 8-9

Name _____

Date _____

Number Puzzles and Multiple Towers

Number Puzzles Recording Sheet

Check off each puzzle you solve. Record your answer.

Pg. 8

Investigation 1 Number Puzzles

✓	Puzzle	Answer
✓	1	16
✓	2	24
✓	3	20, 40
✓	4	150 3, 4
✓	5	150
✓	6	120, 240
✓	7	36
✓	8★	6
✓	9★	impossible
✓	10★	350
	11★	
	12★	
	13	
	14	

~~45, 48, 51, 54, 57, 60,~~
~~66, 69, 72, 75, 78, 81~~

84, 87, 90, 93, 96, 99

~~$6 + 9 = 15$~~
 $8 + 7 = 15$ $9 + 9 = 18$

odd

99

sum of digits
is greater than
15

~~$1 + 1 = 2$~~ $6 + 18$

2 digits

19

multiple of 3

~~8, 16, 24, 32,~~
~~40, 48, 56, 64,~~
~~72, 80, 88, 96~~

99

multiple of multiple of

35

$$35 \times 10 = 350$$

$$35 \times 1 = 35$$

so

$$35 \times 10 = 350$$

~~25~~ ~~50~~ ~~75~~ 100 ?

~~125~~ ~~150~~ ~~175~~ 200

~~225~~ ~~250~~ ~~275~~ 300

~~325~~ 350 ~~375~~ ~~400~~

multiple
2

less than
400

350

1

3x3
square # even

~~9~~
16
~~25~~
36
~~49~~
64

~~16~~ : 1, 16, 4, 4, 8, 2
~~36~~ : 1, 36, 4, 4, 4, 8, 9
~~64~~ :
~~100~~

impossible

less
than 100

prime
1 & self

7: 1x7

2: 1x2

★ - harder

Square # 2 digits
36

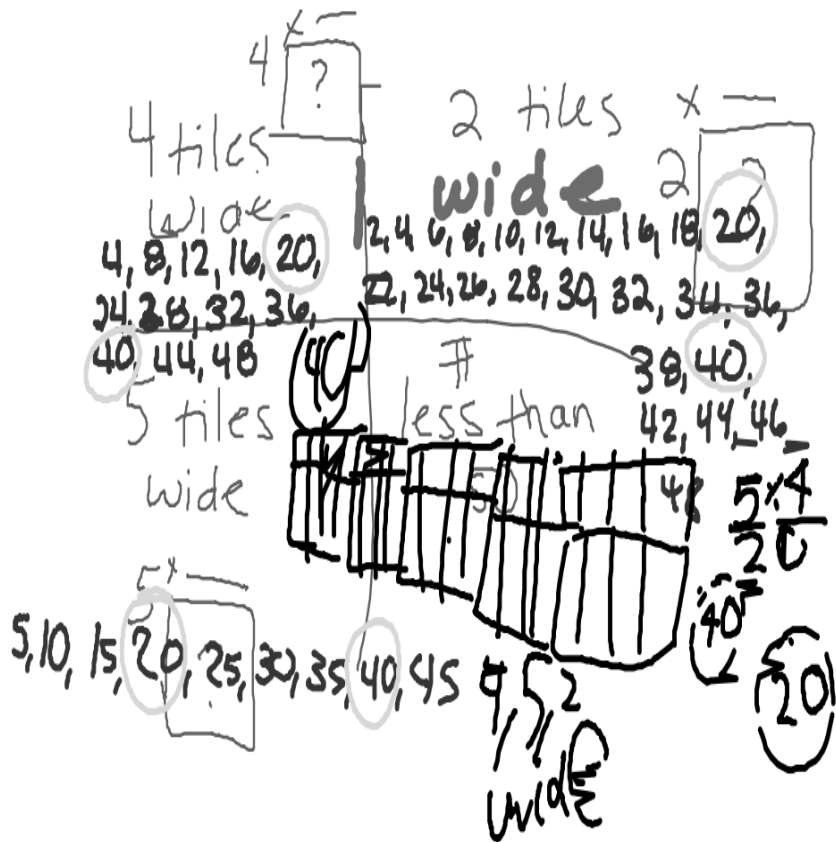
multiple of
9

~~9~~, 18, ~~27~~, 36,
~~45~~, 54, ~~63~~,
72, ~~81~~, ~~90~~ ~~99~~

even

18
 $36 - 6^2 = 36$
54
72
90





1 rectangle
means prime



less than 25

$$6 \times 6 = 36$$

$$3 \times 12 = 36$$

$$4 \overline{)36}$$

$$\underline{-36}$$

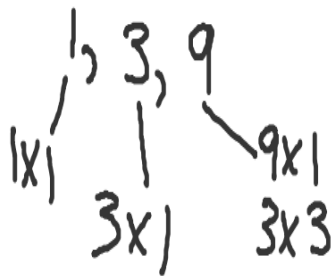
$$00$$

$$2 \overline{)36}$$

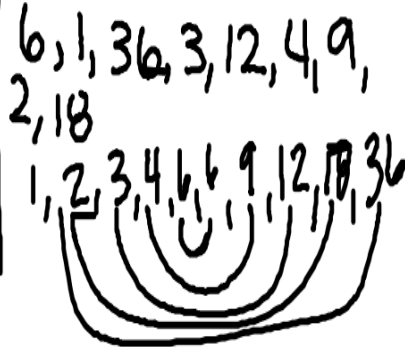
$$\underline{-36}$$

$$00$$

odd



6. factor of 36



3 wide
 $3 \times ? = 24$
 $8?$

$3 \overline{) 24}$

greater than
20

$3 \times ? = \square$

4 wide
 $6 \overline{) 24} = 4$

$4 \overline{) 24}$

less than 30

$4 \times ? = \square$

~~21~~, ~~22~~, ~~23~~, 24, ~~25~~, ~~26~~, ~~27~~, ~~28~~, ~~29~~
 3×7
 $4 \times$
 3×8
 4×6

#5

count by 15
start at 0

~~0, 15, 30, 45,~~
~~60, 75, 90, 105,~~
~~120, 135, 150, 165,~~
~~180, 195~~ +15

even

150

count by 25
start at 0

25 125
50 150
75 175
100

less than 200

0, 30, 60, 90, 120,
150, 180

6

3 digits

120
240

multiple of

$$40 \times 1 = 40$$

$$40 \times 2 = 80$$

$$40 \times 3 = 120$$

$$40 \times 4 = 160$$

$$40 \times 5 = 200$$

$$40 \times 6 = 240$$

$$40 \times 7 = 280$$

less than 300

multiple of

$$60 = 60 \times 1$$

$$120 = 60 \times 2$$

$$180 = 60 \times 3$$

$$240 = 60 \times 4$$

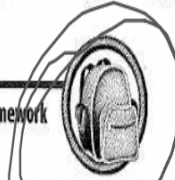
$$300 = 60 \times 5$$

Name _____

Date _____

Number Puzzles and Multiple Towers

Homework



Multiplication Combinations 1

Multiply each number in the first column of the table with the number at the top. For example, the answer for the first blank space in Table A is 14, which is 2×7 . Circle any combinations you do not know immediately, and record them on *Student Activity Book* page 10.

NOTE Fifth-grade students are expected to know their multiplication combinations (facts). This page helps students determine whether they remember their combinations and identify any combinations they still need to practice.

SMH 25-29

Table A

$\times 7$	
2	14
6	42
8	56
3	21
10	70
11	
7	49
12	
4	
9	
5	

Table B

$\times 8$	
2	
9	
4	
11	
8	
10	
6	
5	
3	
12	
7	

Table C

$\times 6$	
10	
4	
2	
8	
3	
6	
9	
5	
12	
11	
7	

Table D

$\times 9$	
5	
2	
12	
4	
10	
7	
3	
6	
11	
8	
9	

Name _____

Date _____

Number Puzzles and Multiple Towers

Homework



Multiplication Combinations Recording Sheet

NOTE Fifth-grade students are expected to know their multiplication combinations (facts). On this sheet, students write any combination they still need to practice and a clue to help them learn it. An example is shown on the left.

SMH 25-29

Example: $7 \times 9 = 63$ and $9 \times 7 = 63$

Clue: $7 \times 10 = 70$ $70 - 7 = 63$

$8 \times 7 = 56$ and $7 \times 8 = 56$
Clue: $7 \times 7 = 49$ $49 + 7 = 56$

$11 \times 2 = 22$ and $2 \times 11 = 22$

Clue: _____

_____ \times _____ = _____ and _____ \times _____ = _____

Clue: _____

_____ \times _____ = _____ and _____ \times _____ = _____

Clue: _____

_____ \times _____ = _____ and _____ \times _____ = _____

Clue: _____

_____ \times _____ = _____ and _____ \times _____ = _____

Clue: _____

Name _____

Date _____

Number Puzzles and Multiple Towers

Daily Practice



Number Puzzles

NOTE Students solve and create number puzzles to help learn about the composition of numbers.

SMH 21-22

1. Solve the following number puzzle.

Clue 1 This number is a factor of 48.	Clue 2 This number is even.
Clue 3 This number is a multiple of 6.	Clue 4 The sum of the digits of this number equals 3.

What number is it? _____

2. Make up your own number puzzle.

Clue 1	Clue 2
Clue 3	Clue 4

The number is _____.

Ongoing Review

3. Which number fits the following clues?

Clue 1 This number is even.

Clue 2 This number is a factor of 54.

~~A. 3~~

B. 6

~~C. 9~~

D. 12

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Session 1.3

$$6 \times 9 = 54$$

Unit 1

11

Multiplying to Make 18 and 180

1. Find all the multiplication combinations you can for these two numbers, using whole numbers. Start by multiplying two factors. Then find ways to multiply with more than two factors.

18 : ^{1, 18, 2, 9,} 3, 6	180
$18 \times 1 = 18$	$180 \times 1 = 180$
$9 \times 2 = 18$	$18 \times 100 = 180$
$3 \times 6 = 18$	$90 \times 2 = 180$
$(2 \times 6) + (3 \times 2)$	$9 \times 20 = 180$
$12 + 6 = 18$	$30 \times 6 = 180$
$3 \times 3 \times 2 = 18$	$3 \times 60 = 180$
$1 \times 9 \times 2 = 18$	$30 \times 3 \times 2 = 180$
	$(1 \times 9) \times 20 \times 10 \times 2 = 180$

2. How did finding the ways to multiply with two numbers help you find ways to multiply with more than two numbers?

18 + add zero to 2nd #
or make # 180

factors of 18 are the same for 180
we add a zero

Name _____

Date _____

Number Puzzles and Multiple Towers

Daily Practice



Factors of 2-Digit Numbers

NOTE Students find factors of 2-digit numbers.

SMH 18

1. Find all of the factors of 36.

36: 1, 36, 2, 18, 3, 12,
4, 9, 6

	D	M	S	B	R
÷	x	-	↓		per Rk.
		36		24	
	2	72		3	72
		6	↓		6
		12			12
		12			12
		00			00

2. Find all of the factors of 72.

72: 1, 72, 2, 36, 3, 24,
4, 18, 6, 12, 8, 9

4	72
	18
	↓
	32
	↓
	00

3. How are the factors of 36 related to the factors of 72?

All of the factors of 36 are also factors of 72.

12	108	031	062
12	124	4	124
	12		12
	004		004
	0		0

Ongoing Review

4. Which number is not a factor of 124?

A. 31

B. 12

C. 4

D. 2

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Session 1.4

Unit 1

13

Name _____

Date _____

Number Puzzles and Multiple Towers

Homework



Multiplication Combinations 2

Multiply each number in the first column of the table with the number at the top. For example, find the product of 3×7 for the first blank space in Table A.

NOTE Fifth-grade students are expected to know their multiplication combinations (facts). This page helps students determine whether they remember their combinations and identify any combinations they still need to practice.

SMH 25-29

In Tables C and D, write a number at the top for a group of combinations you need to practice.

Circle any combinations you do not know immediately, and record them on *Student Activity Book* page 10 or on M30 that your teacher will give you.

→ skip tonight

Table A

$\times 7$	
3	
6	
9	
2	
4	
10	
8	
12	
5	
7	
11	

Table B

$\times 8$	
2	
7	
3	
5	
6	
10	
8	
11	
12	
4	
9	

Table C *

\times _____	
10	
4	
2	
8	
3	
6	
9	
5	
12	
11	
7	

Table D *

\times _____	
5	
2	
12	
4	
10	
7	
3	
6	
11	
8	
9	

Name

Date

8/31/10

Number Puzzles and Multiple Towers

homework

All of the Ways to Multiply

Find all of the ways to multiply to make each product, using whole numbers. First, find the combinations with two factors, and then find ways to multiply with more than two factors.

1. 4, 3, 1, 12, 2, 6

12

3×4	\rightarrow	$3 \times 40 = 120$
2×6	\rightarrow	$30 \times 4 = 120$
12×1	\rightarrow	$2 \times 60 = 120$
$3 \times 2 \times 2 = 2 \times 2 \times 3$	\rightarrow	$20 \times 6 = 120$
$2 \times 3 \times 2$		$120 \times 1 = 120$
$1 \times 6 \times 2$		$12 \times 10 = 120$
$1 \times 3 \times 4$		$3 \times 10 \times 4$
$1 \times 3 \times 2 \times 2$		$3 \times 5 \times 2 \times 2 \times 2$
$1, 2, 3, 4, 6, 12$		$2 \times 30 \times 2$
		$2 \times 15 \times 2 \times 2$

2. 1, 21, 7, 3

21

1×21	\rightarrow	10×21
7×3	\rightarrow	1×210
$1 \times 7 \times 3$	\rightarrow	70×3
	\rightarrow	30×7
	\rightarrow	$15 \times 2 \times 7$
$1, 3, 7, 21$		$5 \times 3 \times 2 \times 7$

Name _____

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Number Puzzles and Multiple Towers

Daily Practice



Factors of 3-Digit Numbers

NOTE Students find factors of 3-digit numbers.

SMH 18

1. Find all of the factors of 100.

1, 100, 2, 50, 4, 25, 5, 20,
10

1, 2, 4, 5, 10, 20, 25, 50, 100

2. Find all of the factors of 200.

1, 2, 4, 5, 8, 10, 20, 25, 40, 50, 100, 200

3. Did you use the factors of 100 to find the factors of 200? If so, how?

Yes! The factors are the same and some double.

$$\begin{array}{r} 50 \\ 3 \overline{)150} \end{array}$$

$$\begin{array}{r} 10 \\ 15 \overline{)150} \end{array}$$

$$\begin{array}{r} 2 \\ 75 \overline{)150} \end{array}$$

$$\begin{array}{r} 125 \\ 125 \overline{)150} \\ +25 \\ \hline 25 \end{array}$$

Ongoing Review

4. Which number is **not** a factor of 150?

A. 3

B. 15

C. 75

D. 125

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Number Puzzles and Multiple Towers

Homework



9/2/10

Multiplication Combinations 3

Multiply each number in the first column of the table with the number at the top. For example, find the product of 9×6 for the first blank space in Table A.

In Tables C and D, write a number at the top for a group of combinations you need to practice.

Circle any combinations you do not know immediately, and record them on *Student Activity Book* page 10 or on M30 which your teacher will give you.

NOTE Fifth-grade students are expected to know their multiplication combinations (facts). This page helps students determine whether they remember their combinations and identify any combinations they still need to practice.

SMH 25-29

Table A

$\times 6$	
9	
4	
7	
5	
8	
3	
12	
2	
11	
6	
10	

Table B

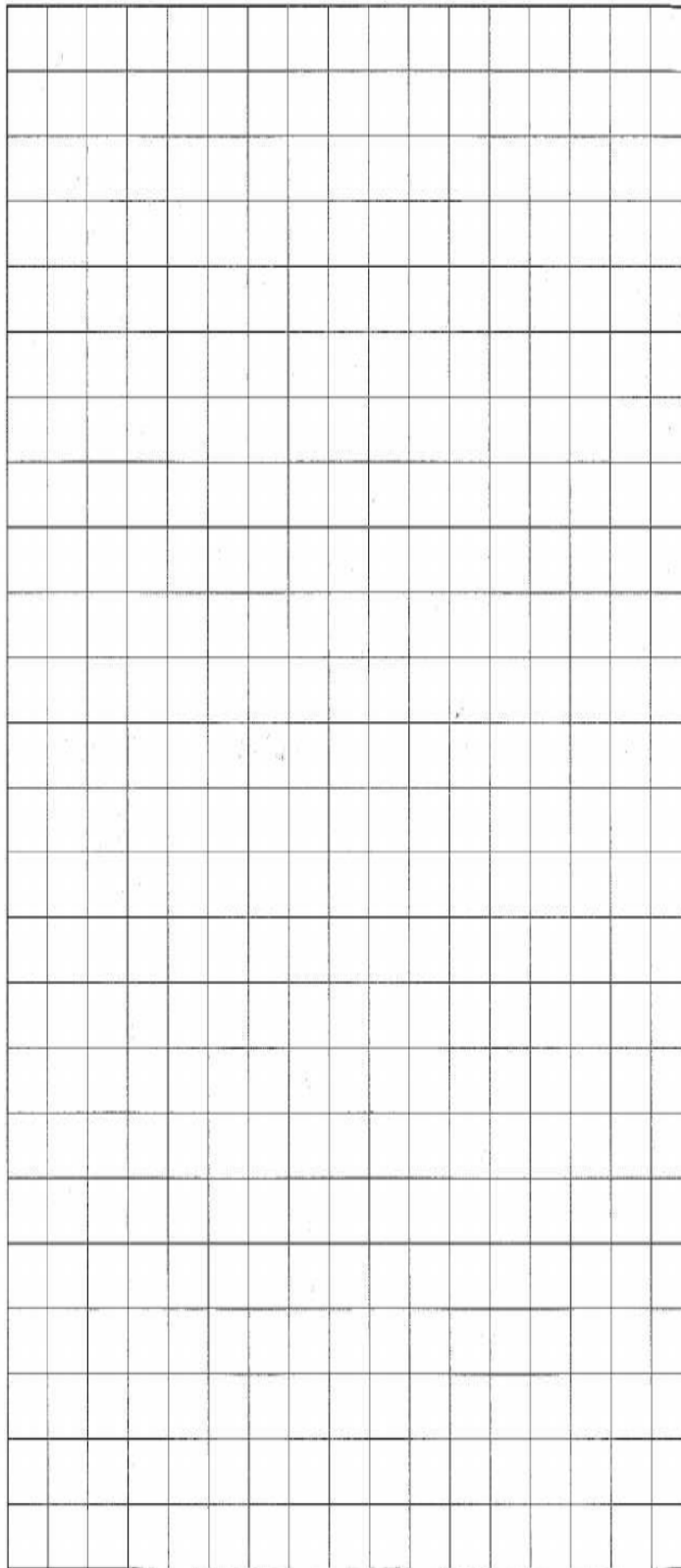
$\times 8$	
4	
5	
3	
2	
6	
10	
7	
12	
8	
4	
9	

Table C

$\times \underline{\quad}$	
10	
5	
12	
7	
4	
2	
8	
6	
3	
12	
9	

Table D

$\times \underline{\quad}$	
12	
9	
8	
7	
2	
11	
3	
4	
10	
5	
6	



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Number Puzzles and Multiple Towers

homework

Multiplication Combinations for 120, 180, and 210

(page 1 of 2)

Think about these questions and give examples from your work on pages 12 and 15 to explain your answers.

1. How did the multiplication combinations you wrote for 12, 18, and 21 help you find some combinations for 120, 180, and 210? Give examples.

$$3 \times 4 = 12$$

80

$$30 \times 4 = 120$$

$$3 \times 40 = 120$$

The factors of

$$12 \neq 120$$

$$18 \neq 180$$

$$21 \neq 210$$

are connected

2. How did you figure out ways to multiply with three or more factors?

split them up

$$\text{ex: } 12 \times 1$$

$$\text{low as } 6 \times 2 \times 1$$

$$\text{it goes } 3 \times 2 \times 2 \times 1$$

÷ the #
in half
& then
in
half

3. How did you know that you found all the possible multiplication combinations for each number?

Name _____

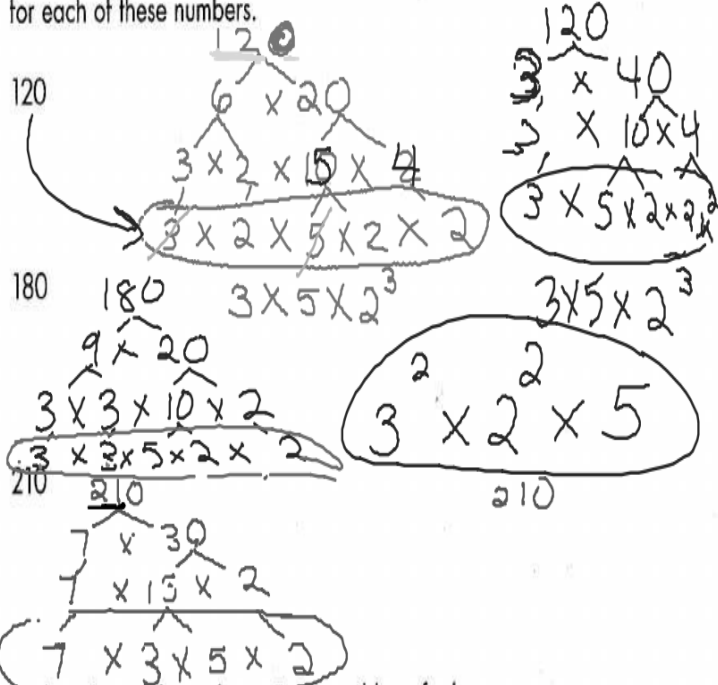
Date _____

Number Puzzles and Multiple Towers

Can I find prime factorization?
Multiplication Combinations
 for 120, 180, and 210 (page 2 of 2)

prime:
 1 and
 itself

4. Write the longest multiplication combination you found for each of these numbers.



5. Look at the numbers above. Is it possible to find a different way to multiply with the same number of factors as what you wrote in Problem 4? (This does not include multiplying the same factors in a different order.)

How do you know?

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Number Puzzles and Multiple Towers

PAGE 21

Daily Practice



Can I find Factors and Multiples of 3-Digit Numbers ?

NOTE Students find factors and multiples of 3-digit numbers.

SMH 18-19

1. Find all of the factors of 150.

factors finish

Hint: $3 \times 5 = 15$ so, I know that $3 \times 50 = 150$

1, 2, 3, 5, 6, 10, 15, 25, 30, 50, 75, 150

2. List five multiples of 150.

multiples go up up up

150 (150×1)

300 (150×2)

450 (150×3)

600 (150×4)

750 (150×5)

~~8~~ $\times 50$

~~30~~ $\times 5$

~~6~~ $\times 25$

~~2~~ $\times 75$

~~150 = 150 \times 150 \times 150 \times 150~~

Ongoing Review

3. Which multiplication combination equals 300?

A. $2 \times 30 \times 6$

B. $10 \times 6 \times 20$

C. $15 \times 2 \times 10$

D. $2 \times 3 \times 15$

15
 $\times 2$
30 $\times 10$

Name _____

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Number Puzzles and Multiple Towers

Homework



Multiplication Combinations 4

In the top blank in each table, write a number for a group of combinations you need to practice. Then multiply each number in the first column of the table by the number at the top.

NOTE Fifth-grade students are expected to know their multiplication combinations (facts). This page helps students determine whether they remember their combinations and identify any combinations they still need to practice.

SMH 25-29

Circle any combinations you do not know immediately, and record them on *Student Activity Book* page 10 or on M30 which your teacher will give you.

Table A

\times _____	
2	
4	
6	
8	
10	
12	
3	
5	
7	
9	
11	

Table B

\times _____	
11	
2	
10	
5	
9	
6	
7	
8	
3	
12	
4	

Table C

\times _____	
9	
11	
8	
6	
10	
4	
12	
7	
5	
3	
2	

Table D

\times _____	
5	
9	
2	
12	
3	
8	
6	
4	
7	
11	
10	

Name

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Number Puzzles and Multiple Towers

Daily Practice



Can I find ways of Multiplying to Make 60 and 90?

NOTE Students find multiplication combinations with two factors and with more than two factors for 60 and for 90.

Find as many ways as you can to multiply whole numbers to make each product

SMH 23-24

1. Multiplying to make 60

Ways to multiply with two factors:

$1 \times 60 = 60$
 $10 \times 6 = 60$
 $1 \times 60 = 60$
 $2 \times 3 = 6$
 $20 \times 3 = 60$
 $2 \times 30 = 60$
 $12 \times 5 = 60$
 $15 \times 4 = 60$

Ways to multiply with more than two factors:

1×60
 $1 \times 30 \times 2$
 $1 \times 15 \times 2 \times 2$
 $1 \times 5 \times 3 \times 2 \times 2$
 2×30

2. Multiplying to make 90

Ways to multiply with two factors:

9×10
 3×30
 2×45
 18×5
 9×1
 15×6

Ways to multiply with more than two factors:

$15 \times 6 \times 1$
 $3 \times 5 \times 3 \times 2$
 $3^2 \times 5 \times 2$
 $5 \times 3 \times 2$

Ongoing Review

3. Which multiplication combination equals 150?

A. $10 \times 5 \times 10$

B. $75 \times 2 \times 10$

C. $25 \times 2 \times 3$

D. $10 \times 5 \times 5$

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Number Puzzles and Multiple Towers

Homework



Multiplication Combinations 5

In the top blank in each table, write a number for a group of combinations you need to practice. Then multiply each number in the first column of the table by the number at the top.

Circle any combinations you do not know immediately, and record them on *Student Activity Book* page 10 or on M30 which your teacher will give you.

NOTE Fifth-grade students are expected to know their multiplication combinations (facts). This homework helps students determine whether they remember their combinations and identify any combinations they still need to practice.

25-29

Table A

\times _____	
4	
8	
6	
2	
9	
12	
3	
5	
7	
11	
10	

Table B

\times _____	
6	
10	
2	
11	
4	
12	
9	
8	
5	
7	
3	

Table C

\times _____	
5	
7	
8	
3	
9	
4	
11	
6	
12	
10	
2	

Table D

\times _____	
3	
5	
2	
6	
9	
10	
4	
11	
12	
8	
7	

Name _____

Date _____

Number Puzzles and Multiple Towers

Daily Practice



Multiplying 2-Digit Numbers

Solve these problems and show your work.

NOTE Students multiply two 2-digit numbers.

SMH 30-32

$$\begin{array}{r}
 1 \cancel{2}6 \times 12 \\
 26 \\
 \times 1 \cancel{2} \\
 \hline
 152 \\
 + 260 \\
 \hline
 312
 \end{array}$$

2. 18×34

$$\begin{array}{r}
 26 \\
 \times 2 \\
 \hline
 52
 \end{array}$$

$$\begin{array}{r}
 26 \\
 \times 10 \\
 \hline
 260
 \end{array}$$

$260 + 52 = 312$

$$\begin{array}{r}
 10 \\
 \times 20 \\
 \hline
 200
 \end{array}$$

$$\begin{array}{r}
 18 \\
 \times 34 \\
 \hline
 172 \\
 + 540 \\
 \hline
 612
 \end{array}$$

$$\begin{array}{r}
 12 \times 18 \\
 10 \times 20 \\
 \hline
 200
 \end{array}$$

Ongoing Review

3. $12 \times 18 =$ _____

A. more than 400

B. about 300

C. about 200

D. less than 100

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Factors of 50 and 72

Find as many ways as you can to multiply using whole numbers to make each product.

NOTE Students practice finding multiplication combinations with two factors and with more than two factors for 50 and 72.

SMH 23-24

remember it $1 \times 5 = 5$
then $10 \times 5 = 50$
 $1 \times 50 = 50$

1. Multiplying to Make 50

Ways to multiply with two factors:	Ways to multiply with more than two factors: show prime factorization
------------------------------------	---

2. Multiplying to Make 72

Ways to multiply with two factors:	Ways to multiply with more than two factors:
------------------------------------	--

Name _____

Date _____

Number Puzzles and Multiple Towers

Solving Multiplication Problems

Choose three of these problems to solve. Show your work.
Use clear and concise notation.

After you have solved the problems, pick at least one of
your solutions and use a representation to show how you
solved it.

27×19

$$\begin{array}{r} 27 \\ \times 19 \\ \hline \end{array}$$

42×32

$$\begin{array}{r} 42 \\ \times 32 \\ \hline \end{array}$$

76×8

$$\begin{array}{r} 76 \\ \times 8 \\ \hline \end{array}$$

82×56

$$\begin{array}{r} 82 \\ \times 56 \\ \hline \end{array}$$

65×14

$$\begin{array}{r} 65 \\ \times 14 \\ \hline \end{array}$$

Name _____

Date _____

Number Puzzles and Multiple Towers

Daily Practice



Multiplying Two Ways

NOTE Students multiply a 2-digit number in two different ways.

SMK 30-32

1. Solve this problem in two different ways.
Show each solution clearly.

$$26 \times 19 = \underline{\hspace{2cm}}$$

First way:

Second way:

Ongoing Review

2. $6 \times 3 \times 10 \times 2 = \underline{\hspace{2cm}}$

- A. 120 B. 300 C. 360 D. 630

